T-23-1 – "Lake Maurepas Ecosystem"

Abstract: Coastal forests in Louisiana are in decline due to natural and human caused changes in the hydrology of the region. Baldcypress and water tupelo trees have been further stressed by caterpillar herbivory in recent decades. Regeneration of water tupelo is crucial for cavity creation for nesting habitat for secondary cavity nesting bird populations. Insectivorous birds have been shown to decrease insect-caused leaf damage on trees in other ecosystems. Two experiments examining effects of insectivorous birds on tree growth were conducted in degraded areas of the Maurepas Swamp in southeastern Louisiana.

In the first experiment, nest boxes were added to study plots in degraded swamp in an attempt to increase densities of secondary cavity nesting birds, and to determine if increased insectivorous bird abundance resulted in improved shoot growth of baldcypress saplings. Prothonotary Warblers were the only bird species to utilize nest boxes, nest boxes did not significantly increase densities of Prothonotary Warblers, and insectivorous bird abundance was not correlated with baldcypress shoot growth.

In the second experiment, bird exclosures were erected around planted baldcypress and water tupelo seedlings. Leaf damage on trees within bird exclosures and those with an insecticide treatment was not significantly different from controls. Foraging observations of Prothonotary Warblers and Northern Parulas, and video nest monitoring of Prothonotary Warbler nests during caterpillar activity, suggest that birds demonstrate a functional response to baldcypress leafroller caterpillars. Results of video nest monitoring suggested that successful Prothonotary Warbler nests active during baldcypress leafroller activity have the potential to protect 76 grams dry weight of baldcypress foliage. However, birds only foraged on baldcypress taller than 2m, and forest tent caterpillars were only observed to be consumed during the first and final caterpillar instar stages. Planted baldcypress seedlings grew faster than planted water tupelo, and water tupelo seedlings had zero height growth, or died-back four times as frequently as baldcypress. Insectivorous birds provide baldcypress some protection from caterpillar herbivory, but birds may offer little protection to water tupelo, especially trees less than 2m tall.

(**Abstract copied verbatim from**: *"Effects of Insectivorous Birds on Tree Growth in the Maurepas Swamp"*; Fox, D.M.; 2006; M.S. Thesis; Louisiana State University, Baton Rouge, LA; 176 pp.)

This grant was closed 31 December 2006. **For more information** about State Wildlife Grant T-23, or to obtain copies of interim or final reports, please contact the State Wildlife Grant Coordinator, LDWF Fur & Refuge Division.